CHAPTER 2

PAVEMENT NETWORK IDENTIFICATION

2-1. Introduction
Before PAVER can be used, the installation pavements must be divided into components. This chapter defines the process. The guidelines for division of airfield pavements are given in AFR 935.

2-2. Definitions
a. Pavement network. An installation's pavement network consists of all surfaced areas which provide accessways for ground or air traffic, including roadways, parking areas, hardstands, storage areas, and airfield pavements.

b. Branch. A branch is any identifiable part of the pavement network which is a single entity and has a distinct function. For example, individual streets, parking areas, and hardstands are separate branches of a pavement network. Similarly, airfield pavements such as runways, taxiways, and aprons are separate branches.

c. Section. A section is a division of a branch; it has certain consistent characteristics throughout its area or length. These characteristics are:

    (1) Structural composition (thickness and materials).
    (2) Construction history.
    (3) Traffic.
    (4) Pavement condition.

d. Sample unit. A sample unit is any identifiable area of the pavement section; it is the smallest component of the pavement network. Each pavement section is divided into sample units for the purpose of pavement inspection. (See AFR 93-5 for size of sample units for airfield pavements.)

    (1) For asphalt or tar-surfaced pavements (including asphalt overlay of concrete), a sample unit is defined as an area of approximately 2500 square feet (plus or minus 1000 square feet).
    (2) For concrete pavements with joint spacing less than or equal to 30 feet, the sample unit is an area of 20 slabs (plus or minus 8 slabs).
    (3) For slabs with joint spacing more than 30 feet, imaginary joints should be assumed. These imaginary joints should be less than 30 feet apart. This is done for the purpose of defining the sample unit. For example, if slabs have a joint spacing of 50 feet, imaginary joints may be assumed at 25 feet. Thus, each

slab would be counted as two slabs for the purpose of pavement inspection.

2-3. Guidelines for pavement identification
a. Dividing the pavement network into branches. The first step in using PAVER is to identify the pavement branches. The easiest way to identify these branches is to use the installation's existing name identification system.

    (1) For example, Marshall Street in figure 2-1 would be identified as a branch. Areas such as parking lots and storage areas that do not have names already assigned can be given descriptive names which associate them with their area.
    (2) In addition to descriptive names, branches are assigned a unique code to help store and retrieve data from the PAVER files. This code has five characters which are numbers of letters given to the branches using any logical order. The first letter of the code will identify the type of branch as shown in table 2-1. For example, the parking lot 321 shown in figure 2-1 is given the code *P0321*. The code *P0321* is derived from P representing parking lots and *0321* representing the nearest building to the parking area. Since the building number has less than four digits, a zero is used on the left to provide the required characters.

b. Dividing branches into sections.
    (1) Since branches are large units of the pavement network, they rarely have consistent or uniform characteristics along their entire length. Thus, for the purpose of pavement management, each branch must be subdivided into sections with consistent characteristics. As defined in paragraph 2-2c, a section must have uniform structural composition, traffic, and the same construction history.
    (2) After each section is initially inspected, pavement condition within the section can be used to subdivide it into other sections if a considerable variation in condition is encountered. For example, a section containing part of a two-lane road that has one lane in a significantly different condition than the other lane should be subdivided into two sections. Unique situations such as those that
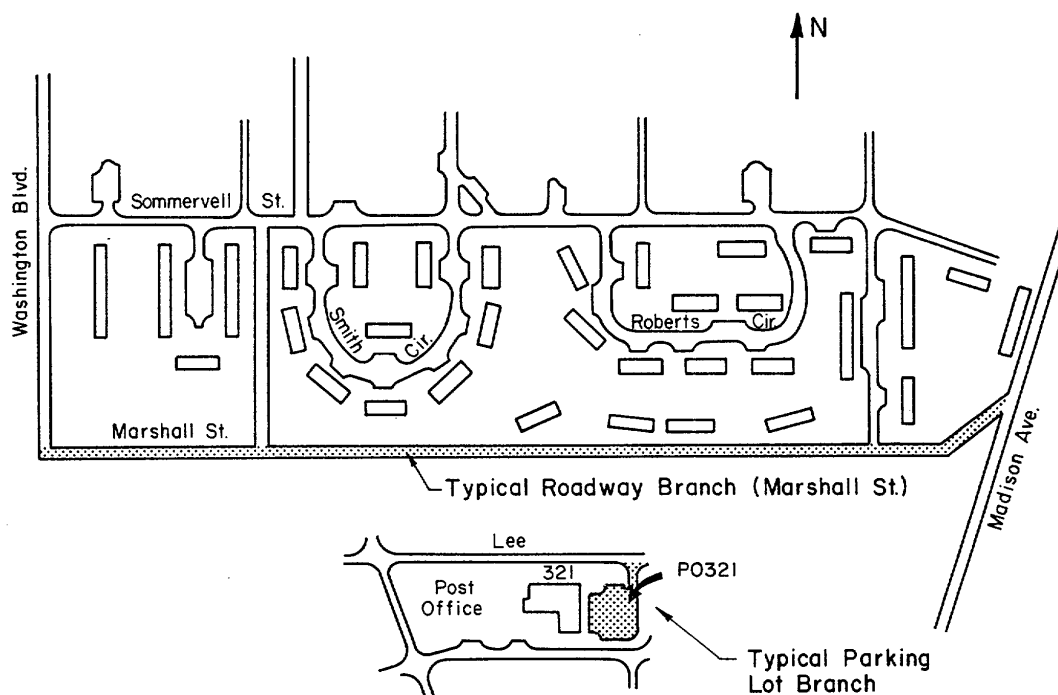
Figure 2-1. Installation map showing typical pavement branches.

Table 2-1. Branch Codes.

Type of Branch	First Letter in Branch Code
Installation road	1
Parking lot	P
Motor pool	M
Storage/hardstands	S
Runway	R
Taxiway	T
Helicopter pad	H
Apron	A
Other	X

Table 2-1. Branch Codes

occur at roadway intersections should also be placed in separate sections. However, it must be remembered that the major section's structure usually carries through an intersection. The structure should be checked if there is doubt as to which pavement would continue through the intersection. Some guidelines for dividing pavement network branches into sections are:

(a) Pavement structure. Structure is one of" the most important criteria for dividing a branch into sections. Structural information is not always available for all branches of a pavement network. To collect structure information, available construction records can be searched and patching repairs can be observed. In addition, pavement coring programs can be developed to determine the structural composition of remaining pavement sections or to verify existing information.

(b) Traffic. The volume and load intensity of traffic should be consistent within each individual section.

(c) Construction history. All portions of a section should have been constructed at the same time. Pavement constructed in intervals should be divided into

separate sections corresponding to the dates of construction. Areas that have received major M&R work should also be considered as separate sections.

(d) Pavement rank. Pavement rank can also be used to divide a branch into sections. If a branch changes along its length from primary to secondary, or secondary to tertiary, a section division should be made. If a branch becomes a divided roadway along its length, a separate section should be defined for each direction of traffic. (Definitions of primary, secondary, and tertiary roads and streets may be found in TM 5-822-2.)

(e) Drainage facilities and shoulders. It is recommended that shoulder type and drainage facilities be consistent throughout a section.

(f) Test areas. An area where materials have been placed for testing should be identified as a separate section.

(3) By using the criteria in subparagraphs (2) *(a)* through *(f)* above, the pavement branches can be divided into sections. Sections are numbered beginning with 1 at the north or west end of the branch. The numbers then increase in a southerly or easterly direction. Each section should be identified on the installation map.

(4) To identify a section on the installation map, place an arrow at the starting point and ending point of each section (figure 2-2). Sample units should be numbered in ascending order from the beginning of each section.

(5) Subparagraphs (2)*(a)* through *(f)* above that apply to roadways may also be applied to branch types such as parking areas, storage areas, hardstands, etc. These branch types are usually considered one section, but may be subdivided. For example, a parking lot could be divided into more than one section; if the parking lot's drive areas were well defined, each drive area would be identified as a separate section.

(6) Small parking lots (usually allowing parking of less than 10 vehicles each) may be considered as one section if they are located close together and have consistent characteristics. For example, figure 2-3 shows a grouping of small parking lots around Smith Circle. These lots may be considered as a branch with one section. However, if the lots are relatively large and/or do not have consistent characteristics, such as those shown bordering Sommervell in figure 2-3, they may be defined as one branch, but each lot should be considered an individual section.
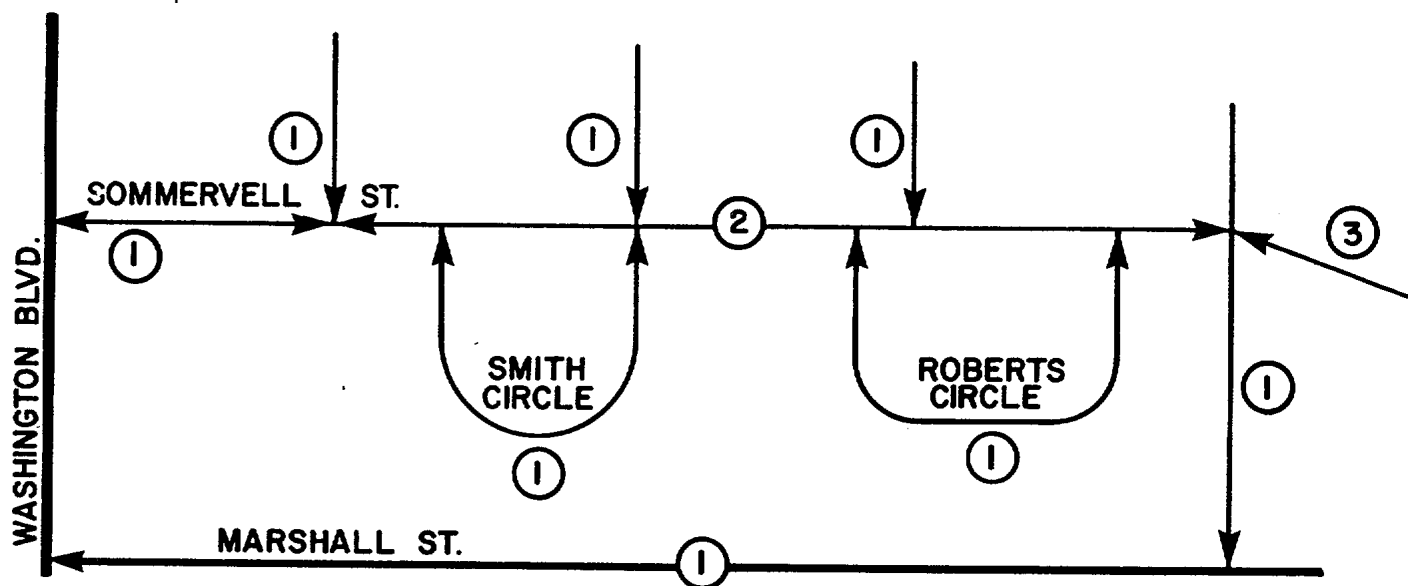

Figure 2-2. Sections identified on an installation map.

(7) An example of dividing a parking area into sections is shown in figure 2-4. The area is very large and defined as one branch with five sections. The basic division of sections is based on traffic patterns and use. Field observations of these types of branches will help decide how to divide such an area into sections.

c. Dividing a section into sample units. A sample unit is the smallest component of the pavement network

and is used for inspection purposes to determine existing pavement distress and condition.

(1) The sizes of the sample units are described in paragraph 2-2d. For asphalt pavements, a sample unit may vary in size from approximately 1500 square feet to 3500 square feet, with a recommended average of 2500 square feet. For concrete pavement, a-sample unit may vary in size from approximately 12 to 28 slabs, with a recommended average of 20 slabs. A

PARKING LOTS ON
SUMMERVELL ST.
1 BRANCH-6 SECTIONS

N

Washington Blvd.

Sommervell St.

Smith Cir.

Roberts Cir.

Marshall St.

1 Branch-1 Section
10 Sample Units

Parking on
Smith Circle

Lee

321

PO321

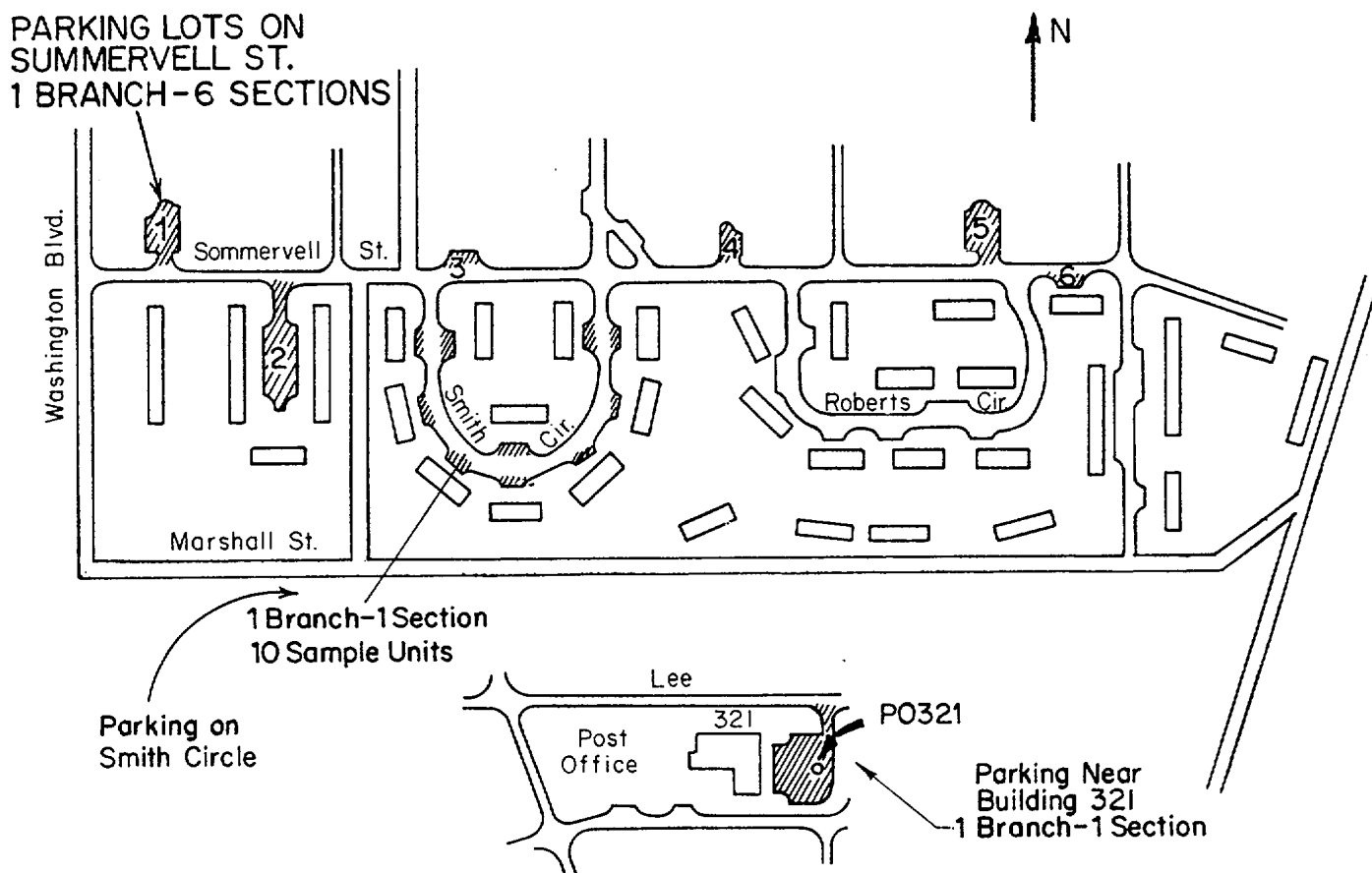Post
Office

Parking Near
Building 321
1 Branch-1 Section

Figure 2-3. Installation map showing various methods of identifying parking area branches.

A significant factor in selecting a typical sample unit size for a section is convenience. For example, an asphalt pavement section that is 22 feet wide by 4720 feet long can be divided into sample units that are 22 feet wide by 100 feet long, or 2200 square feet. The last sample units of the section may have to be of different lengths because of the length of the section. In the above example, the section is divided into 46 units that are each 100 feet long and one unit that is 120 feet long.

Thus, the last sample unit has an area of 22 x 120 or 2640 square feet. The above example is shown in figure 2-5.

(2) A schematic diagram of each section (such as that shown in figure 2-5) will be made showing the size and location of its sample units. These sketches are required for future inspections to relocate the sample units.
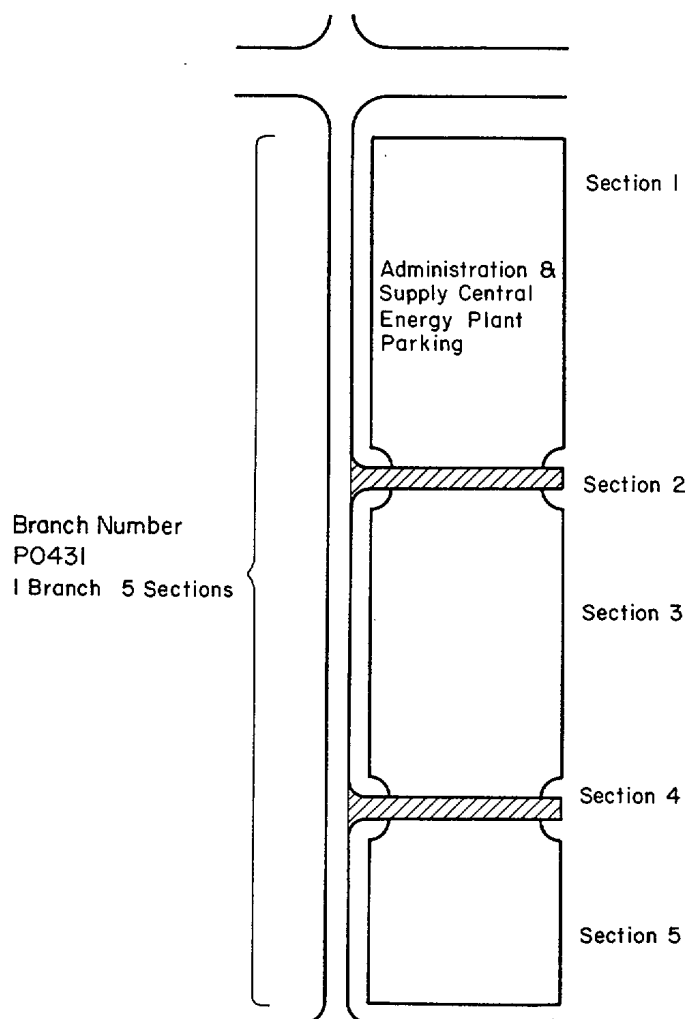
2-4

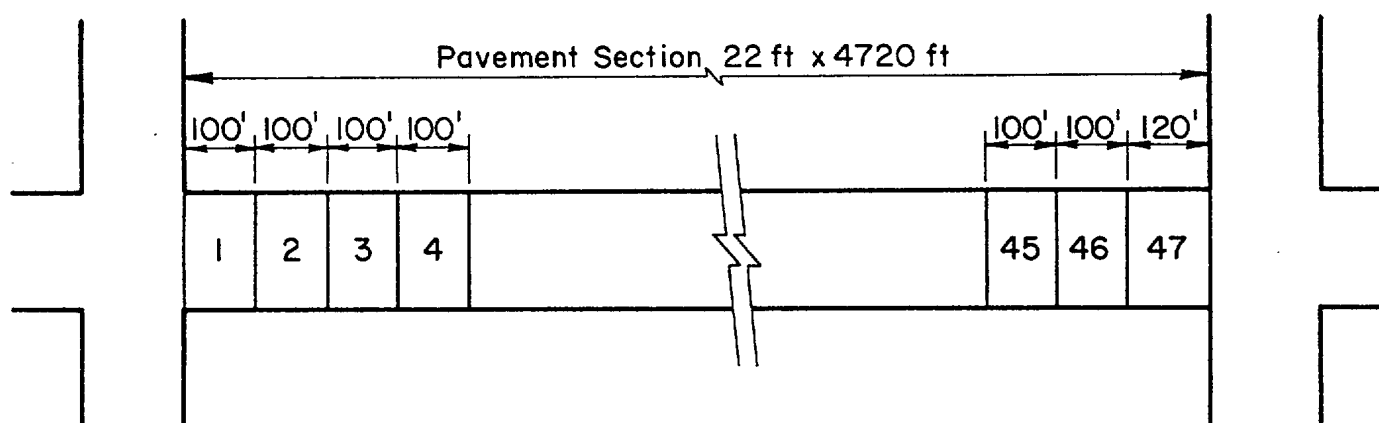*Figure 2-4. Large parking area divided into several sections.*

Figure 2-5. Example of a asphalt section divided into sample units.